

REMARKS/ARGUMENTS

Claims 26-32 and 34 remain pending in the instant application. Claims 26, 32, and 34 have been amended. Claims 35-58 have been added.

Embodiments in accordance with the present invention relate to methods and computer programs for managing laboratory operations for gene expression monitoring, sequencing, and sequence checking. Independent claims 26, 32, and 34 have now been amended to focus on a probe array experiment conducted over a computer network:

26. A method for a user interface to accept laboratory experiment information for control of a laboratory experiment, the method using a computer system, the computer system including a processing system coupled to a network, wherein a user input device, display device and processor are coupled to the processing system, the method comprising
accepting signals from the user input device to define a parameter of a probe array experiment;
transferring the parameter to the network;
receiving experiment results from the network, wherein the experiment results include results from the probe array experiment using the parameter; and
displaying the experiment results on the display device. (Emphasis added)

32. A method for displaying laboratory experiment information, the method using a computer system, the computer system including a processing system coupled to a network, wherein a display device and processor are coupled to the processing system, the method comprising
using the processor to display steps of setup and execution of a probe array experiment over the network; and
using the processor to display a result for a sample for one or more of the displayed steps. (Emphasis added)

34. A computer program embodied on a computer-readable medium for a method to accept laboratory experiment information, the method using a computer system, the computer system including a processing system coupled to a network, wherein a user input device, display device and processor are coupled to the processing system, the computer program including
one or more instructions for accepting signals from the user input device to define a parameter of a probe array experiment;
one or more instructions for transferring the parameter to the network;

one or more instructions for receiving experiment results from the network, wherein the experiment results include results from the probe array experiment using the parameter; and
displaying the experiment results on the display device. (Emphasis added)

Dependent claims 35-58 have now been added to elaborate upon different aspects of a probe array experiment. In particular, claims 35-36, 43-44, and 51-52 relate to scanning in a probe array experiment. Support for these additional claims may be found in the application as originally filed, at least at page 20, lines 6-11 and Figure 10E.

Newly added claims 37-38, 45-46, and 53-54 relate to grid alignment in a probe array experiment. Support for these additional claims may be found in the application as originally filed, at least at page 14, lines 3-12.

Newly added claims 39-40, 47-48, and 55-56 relate to cell average analysis in a probe array experiment. Support for these additional claims may be found in the application as originally filed, at least at page 14, lines 13-22.

Newly added claims 41-42, 49-50, and 57-58 relate to hybridization in a probe array experiment. Support for these additional claims may be found in the application as originally filed, at least at page 13, lines 23-34.

In the latest office action, the Examiner rejected claims as either anticipated under 35 U.S.C. §102, or obvious under 35 U.S.C. §103, based upon U.S. patent no. 5,968,731 to Layne et al. ("the Layne patent"), alone or in combination with other references. These claim rejections are overcome as follows.

As a threshold matter, the Examiner is reminded that certain of the pending claims stand rejected as anticipated, and not merely obvious, in light of the Layne patent:

[t]he distinction between rejections based on 35 U.S.C. § 102 and those based on 35 U.S.C. § 103 should be kept in mind. Under the former, the claim is anticipated by the reference. No question of obviousness is present. In other words, for anticipation under 35 U.S.C. § 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. (Emphasis added; MPEP 706.02)

Here, the Layne patent fails to teach each and every aspect of the pending claims.

Specifically, the Layne patent relates to automated testing of infectious biological specimens. While such automated testing can be conducted over a computer network, the Layne patent describes only a testing apparatus comprising a conventional 96-well microtiter plate in conjunction with robotic fluid handling apparatuses. (See generally Figs. 7-8 and col. 11, line 49 - col. 13, line 12). The Layne patent fails to include any teaching or suggestion regarding the use of probe array technology.

In an effort to provide such a teaching, the Examiner has combined the Layne patent with U.S. patent 6,100,030 to McCasky Feazel et al. ("the McCasky Feasel patent").

In order to establish a prima facie case of obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP 2143. Here, the McCasky Feasel patent does indeed disclose the use of probe array techniques, even mentioning Applicant's probe array technology by name:

one of skill is also able to order custom-made arrays and array-reading devices from manufacturers specializing in array manufacture. For example, Affymetrix Corp., in Santa Clara, Calif. manufactures DNA VLSIP™ arrays. (Emphasis added; col. 24, lines 37-41)

However, as openly conceded by the Examiner, the McCasky Feasel patent fails to teach or even suggest conducting such a probe array experiment over a computer network. This lack of disclosure by the McCasky Feasel patent is hardly surprising, given the enormous quantities of data involved:

[t]hese arrays, which are known, e.g., as "DNA chips," or as very large scale immobilized polymer arrays ("VLSIPS™" arrays) can include millions of defined probe regions on a substrate having an area of about 1 cm² to several cm², thereby incorporating sets of from a few to millions of probes. (Emphasis added; col. 24, lines 59-64)

The probe array technology employed by the McCasky Feasel patent may be fairly contrasted with the conventional technology employed by the Layne patent, which involves receiving experimental data from microtiter plates hosting at most only ninety-six probes at a time. (See Figure 9).

Owing to the lack of teaching in the Layne and McCasky Feasel patents considered separately, the Examiner has relied upon their combination in order to reject the claims. However, the Examiner is reminded that in order to establish such a prima facie case of obviousness, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." (MPEP 2143). Moreover, any motivation to combine reference teachings must be found in the prior art, and not be based upon applicant's own disclosure:

The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. (Emphasis added; MPEP 2142)

Here, there is very little common teaching to provide motivation to combine the Layne and McCasky Feasel patents. The Layne patent relates to diagnosis of infectious disease utilizing conventional microtiter plate technology, but is entirely silent regarding the use of probe arrays. Conversely, the McCasky Feasel patent describes extensively the use of probe arrays (including Applicant's own technology), but is silent regarding any resulting communication of large data streams over a computer network. This absence of any nexus between the subject matter of the references relied upon by the Examiner, suggests the improper use of hindsight by the Examiner in their combination. Specifically, consciously or unconsciously, the Examiner has seized upon Applicant's own disclosure of probe array technology, to establish a motivation to combine the Layne and McCasky Feasel patents.

In view of the use of hindsight to provide motivation for combination of the references, it is respectfully asserted that continued rejection of the claims is improper. The obviousness claim rejections are improper and should be withdrawn.

Appl. No. 09/397,494
Amdt. dated October 19, 2004
Response to Office Action of May 21, 2004

PATENT

Based upon the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. Issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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